


Bio 115 Cells & Evolution of Life

The Basics of Life

Nucleic Acids



Start Audio Lecture!

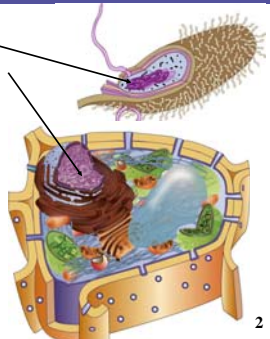
1

Bio 115 Cells & Evolution of Life

Nucleic Acids – DNA and RNA

DNA is found in the nucleoid of prokaryotic cells and the nucleus of eukaryotic cells. DNA stores the genetic information of individuals.

RNA is found throughout cells. RNA translates the information of DNA into protein.



2

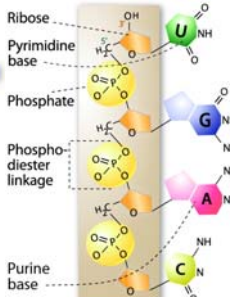
Bio 115 Cells & Evolution of Life

Nucleotides: Monomers of Nucleic Acids

Nucleotides consist of a nitrogenous base, a five carbon sugar, and a phosphate.

Alternating sugars and phosphates, covalently linked by **phosphodiester linkages**, make up the backbone of nucleic acids.

RNA (Single Strand)



The Nitrogenous Bases

There are five nitrogenous bases found in nucleic acids:

Pyrimidines



Purines bond with pyrimidines, and vice versa.

C bonds with G, and A bonds with T (or U).

Purines



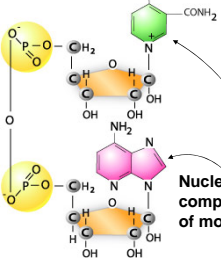
DNA (Double Strand)



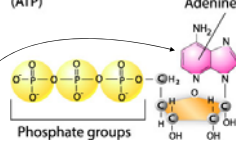
4

Nucleotides Play Other Roles for the Cell

Nicotinamide Adenine Dinucleotide (NAD)



Adenosine Triphosphate (ATP)

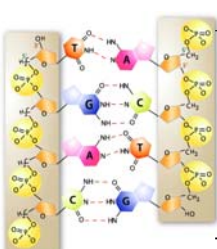


Nucleotides are essential components of many types of molecules.

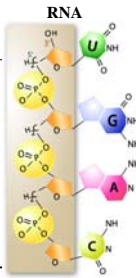
5

DNA vs. RNA

DNA (double stranded)



Nucleic Acid	Sugar	Bases
RNA	Ribose	Adenine Cytosine Guanine Uracil
DNA	Deoxyribose	Adenine Cytosine Guanine Thymine

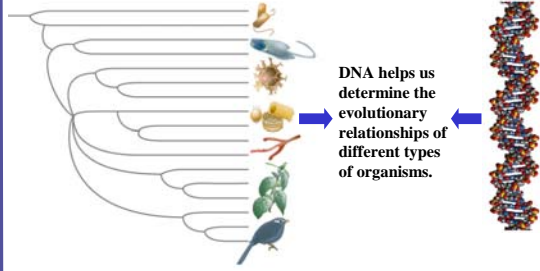


the DNA double helix

6



DNA – A History Book of Evolution



7
